

Appl. No. 10/775,116
Amdt. Dated Jan. 10, 2006
Reply to Office Action of Nov. 03, 2005

REMARKS/ARGUMENTS

Claims 1-17 have been amended to more clearly state the Applicant's invention and to better define over the prior art. Support in the Applicant's specification for these amendments is found at page 7, lines 8-17 and elsewhere. New claims 18 and 19 have been added to include the feature of a rotary encoder. Support in the specification for this feature is found at page 7, lines 2-7. No new matter has been added.

Claims 10-15 stand rejected under 35 U.S.C. 112, second paragraph, as being indefinite because of terminology found in claims 10 and 15. Claim 10 has been amended to remove the offending phrase "said mechanical resistance means." In claim 15, the term "bicycle-type" has been changed to "bicycle." By these amendments, the outstanding rejection under 35 U.S.C. 112 has been traversed.

Claims 1-7 and 15 stand rejected under 35 U.S.C. 102(b) as being anticipated by Davidson. It is well settled law that a rejection properly formed under 35 U.S.C. 102(b) must include all of the claim limitations in a single cited reference. However, Davidson fails to meet all the limitations of claims 1-7 and 15 as now amended. Davidson merely discloses an electrically assisted cycle whose main source of propulsion is a mechanical drive connected to foot pedals (rotary input means) and also connected to the motor. To the contrary, Applicant's claims clearly state that the means for propelling the vehicle is mechanically independent of the rotary input device. This enables the rotary input device to function only as a speed controller and not necessarily require any substantial amount of turning force by the operator. See page 3, lines 4-6

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of Applicant's specification. Thus, the teachings of Davidson fail to include this limitation of Applicant's claims 1-7 and 15. Furthermore, the sensing means of Davidson does not provide a signal which varies the amount of power supplied to the motor in a continuous range proportional to its speed as now claimed. The Davidson sensing means merely acts as a limiter to prevent power being delivered to the motor until a minimum speed is reached. This actually requires greater foot pedal force at low speeds rather than less which is one of the functional objectives of the Applicant's invention. Therefore since the limitations of these claims are not met by this reference, their rejection under 35 U.S.C. 102(b) as being anticipated by Davidson is respectfully traversed.

Claims 1-12, 15, and 16 stand rejected under 35 U.S.C. 102(a and e) as being anticipated by Tahara. Like Davidson, Tahara discloses a bicycle drive system in which the pedals are mechanically connected to an assist drive motor and to the drive wheel so that vehicle propulsion is supplied primarily by foot pedal working force. To the contrary, the Applicant's invention as claimed provides a speed control device which can require substantially no physical effort on the part of the operator to drive the vehicle. This is provided by sensing means such as a rotary encoder which is mechanically independent of the other drive components. This permits physically impaired operators who are incapable of forcibly driving a bicycle to operate rotary pedals simulative of driving a bicycle while the vehicle is actually fully motorized. See Applicant's specification page 5, lines 21-22 and page 6, lines 1-4. Claims 1-12 and 15 as amended require that the rotary input device be mechanically independent of the means for propelling the vehicle.

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To the contrary, the Tahara rotary input device is mechanically connected to the propulsion means. See Tahara, paragraphs 0028 and 0029. With regard to claim 16 as amended, the Applicant has claimed a sensing means which is incrementally responsive to the angular position of the rotary input device such as an encoder. The Tahara generator cannot provide this functionality as the Tahara generator/motor combination is incapable of positional proportionality. Furthermore, the power to the drive motor of Tahara is regulated only by switch means 25 and not the sensed speed of the pedals. Also, contrary to the claims, the speed of the Tahara pedals may be halted while the vehicle is motor driven. See Tahara, paragraph 0047. In accordance with the foregoing argument, it will be readily understood that many of the limitations of claims 1-12, 15 and 16 as amended have not been met by the Tahara disclosure and therefore the outstanding rejection under 35 U.S.C. 102 (a and e) is respectfully traversed.

Claims 13, 14, and 17 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Tahara. Claims 13, 14, and 17 all depend from base claim 1 which as explained above with regard to the rejection under 35 U.S.C. 102(b) provide novel features not found in the Tahara teachings. It would not be obvious to take the teachings for the health promoting machine of Tahara which at times is intended to provide significant resistance to the operator for physical exercise and modify them to create the claimed vehicle speed controller which in at least one embodiment requires no substantial physical force to operate but must be rotated to drive the vehicle. Claim 1 as amended now clearly recites that the motor which propels the vehicle receives power from the power source only in proportion to the sensed speed of the rotary input device, whereas the

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Tahara vehicle can be driven mechanically and/or by a motor controlled only by switch means 25. To replace the switch means 25 with a pedal speed sensor and a proportional drive controller as claimed would destroy the stated benefit of coasting described by Tahara. See paragraph 0047. Too, it would add complexity with no benefit and therefore be an illogical modification. Since claims 13, 14, and 17 include limitations which are contrary to the teachings of Tahara, one of ordinary skill in the art would not be led in the direction of the novel combination of elements brought out in these claims with the Tahara reference before him and thus these claims are non-obvious. It is therefore respectfully requested that the outstanding rejection of claims 13, 14, and 17 under 35 U.S.C. 103(a) be reconsidered and withdrawn.


New claims 18 and 19 recite the addition of rotary encoders to determine the angular position of the rotary input device and the angular position of the motor output means so that the rotational position of the motor output means is driven in proportion to the angular position of the rotary input device. These structures provide accurate control of the movement of the vehicle at slow speeds. This motion control is not possible by the Tahara sensing means. The Tahara teachings require a separate speed controller (control switch 25) to operate the vehicle. See paragraphs 0040 and 0041. To the contrary, Applicant's encoder rotary input device is the speed controller so that forcible pedaling can be simulated and movement of the vehicle carefully controlled. See the Applicant's specification at page 2, lines 9-15 and page 3, lines 2-6. Neither of the references teach or suggest the use of encoders or any other device for incrementally determining the angular position of either the rotary input device or the output motor, nor would

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the addition of these structures be obvious modifications that could enhance the function of either the Davidson or Tahara devices. The encoder structures brought out in new claims 18 and 19 therefore provide additional novel and unobvious limitations to claim 16 and are thus deemed allowable.

In light of the foregoing amendments and newly presented claims together with the rebuttal and argument presented herein, it is now believed that claims 1-19 presently pending in this application are in condition for allowance. Any prima facie case of obviousness under 35 U.S.C. 103 that the Examiner may have made out has been sufficiently rebutted. Allowance of all pending claims at an early date is hereby solicited.

Respectfully submitted,



GREGORY J. GORE

Reg. No. 30,057

Attorney for Applicant

Ph. (215) 348-1442

Fax (215) 348-7643

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